In the claims:

1. (currently amended) A method for managing peer-to-peer communications in a Wireless Local Area Network (WLAN) having a plurality of wireless terminals, one of which acts as a master at any time and remaining ones acting as slaves at any time, the method comprising:

communicating according to a frame cycle including a beaconing period, a broadcast data period, a plurality of polled data periods, and a contention period;

during the beaconing period, the master transmitting a beacon and each of the plurality of Slaves listening for the beacon;

during the broadcast data period, the master broadcasting data and each of the plurality of Slaves listening for the broadcast data;

during each polled data period, the master polling an assigned Slave and the assigned Slave transmitting data to the master if it has data to send;

during the contention period, a new Slave, if present, transmitting to the master;

during the plurality of polled data periods, non-assigned Slaves optionally powering down their transmitters and receivers; and

during the contention period, the plurality of Slaves optionally powering down their transmitters and receivers.

2. (original) The method of claim 1, further comprising alternating mastering duties among the plurality of wireless terminals according to a round-robin mastering cycle, the round-robin mastering cycle including a plurality of frame cycles, one of the plurality of wireless

terminals acting as a master during each frame cycle and remaining ones of the plurality of wireless terminals acting as Slaves during each frame cycle.

3. (original) The method of claim 2, further comprising none of the wireless terminals serving as the master for consecutive frame cycles of the round-robin mastering cycle.

4. (original) The method of claim 2, further comprising none of the wireless terminals serving as the master for more than one frame cycle of the plurality of frame cycles of the round-robin mastering cycle.

5. (original) The method of claim 2, further comprising one of the wireless terminals acting as the master for more than one consecutive frame cycle of the plurality of frame cycles of the round-robin mastering cycle.

6. (original) The method of claim 1, wherein during both the beaconing period and the broadcast data period, at least one Slave of the plurality of the Slaves powers down its respective transmitter.

7. (original) The method of claim 1, further comprising:

during the beaconing period, a Slave determining that it has been assigned a polled data period that immediately follows the broadcast data period;

the Slave powering down its transmitter during the beaconing period; and

the Slave powering up its transmitter during the polled data period immediately following the broadcast data period.

8. (original) The method of claim 1, further comprising:

during the beaconing period, a Slave determining that it has been assigned a polled data period that does not immediately follow the broadcast data period;

the Slave powering down its transmitter during the beaconing period;

the Slave powering down its receiver during the polled data period immediately following the broadcast data period; and

the Slave powering up its transmitter and its receiver during its assigned polled data period.

9. (original) The method of claim 1, further comprising, during the plurality of polled data periods, Slaves powering down their transmitters and receivers during unassigned polled data periods.

10. (original) The method of claim 1, wherein the polled data period includes a polling period, a data transmission period, and an acknowledgement period, and the method further comprising:

an assigned Slave ramping up power to its transmitter during the polling period;

the assigned Slave fully powering its transmitter during the data transmission period; and

the Slave powering down its transmitter during the acknowledgement period.

11. (original) The method of claim 10, further comprising the assigned Slave powering its receiver during the polling period, the data transmission period, and the acknowledgement period.

12. (original) The method of claim 1, further comprising the plurality of Slaves powering up their receivers after the contention period in anticipation of the next beaconing period.

13. (original) The method of claim 1, further comprising the master powering down its transmitter during the contention period.

14. (original) The method of claim 13, further comprising the master powering down its receiver during the contention period after a new Slave-waiting period expires.

15. (currently amended) A system for managing peer-to-peer communications in a Wireless Local Area Network (WLAN) having a plurality of wireless terminals, the system comprising:

a plurality of frame cycles, one of the plurality of wireless terminals acting as a master during each frame cycle and remaining ones of the plurality of wireless terminals acting as Slaves during each frame cycle;

each frame cycle comprising a beaconing period, a broadcast data period, a plurality of polled data periods, and a contention period;

whereby during the beaconing period, the master transmits a beacon and each of the plurality of Slaves listens for the beacon;

whereby during the broadcast data period, the master broadcasts data and each of the plurality of Slaves listens for the broadcast data;

whereby during each polled data period, the master polls an assigned Slave and the assigned Slave transmits data to the master if it has data to send;

whereby during the contention period, a new Slave, if present, transmits to the master;

whereby during the plurality of polled data periods, non-assigned Slaves optionally power down their transmitters and receivers; and

whereby during the contention period, the plurality of Slaves optionally power down their transmitters and receivers.

16. (original) The system of claim 15, wherein the plurality of frame cycles are organized in a round-robin mastering cycle in which the plurality of wireless terminals alternate mastering duties.

17. (original) The system of claim 16, whereby none of the wireless terminals serving as the master for consecutive frame cycles of the round-robin mastering cycle.

18. (original) The system of claim 16, whereby none of the wireless terminals serves as the master for more than one frame cycle of the plurality of frame cycles of the round-robin mastering cycle.

19. (original) The system of claim 16, whereby one of the wireless terminals acts as the master for more than one consecutive frame cycle of the plurality of frame cycles of the round-robin mastering cycle.

20. (original) The system of claim 15, whereby during both the beaconing period and the broadcast data period, at least one Slave of the plurality of the Slaves powers down its respective transmitter.

21. (original) The system of claim 15, whereby:

during the beaconing period a Slave determines that it has been assigned a polled data period immediately following the broadcast data period;

the Slave powers down its transmitter during the beaconing period; and

the Slave powers up its transmitter during the polled data period that immediately follows the broadcast data period.

22. (original) The system of claim 15, whereby:

during the beaconing period a Slave determines that it has been assigned a polled data period not immediately following the broadcast data period;

the Slave powers down its transmitter during the beaconing period;

the Slave powers down its receiver during the polled data period immediately following the broadcast data period;

the Slave powers up its transmitter and its receiver during its assigned polled data period.

23. (original) The system of claim 15, whereby, during the plurality of polled data periods, Slaves power down their transmitters and receivers during unassigned polled data periods.

24. (original) The system of claim 15, wherein the polled data period includes a polling period, a data transmission period, and an acknowledgement period, and whereby:

an assigned Slave ramps up power to its transmitter during the polling period;

the assigned Slave fully powers its transmitter during the data transmission period; and

the Slave powers down its transmitter during the acknowledgement period.

25. (original) The system of claim 24, whereby the assigned Slave powers its receiver during the polling period, the data transmission period, and the acknowledgement period.

26. (original) The system of claim 15, whereby the plurality of Slaves power up their receivers after the contention period in anticipation of the next beaconing period.

27. (original) The system of claim 15, whereby the master powers down its transmitter during the contention period.

28. (original) The system of claim 27, whereby the master powers down its receiver during the contention period after a new Slave-waiting period expires.

29. (currently amended) A system for managing peer-to-peer communications in a Wireless Local Area Network (WLAN) having a plurality of wireless terminals, the system comprising:

means for communicating according to a frame cycle including a beaconing period, a broadcast data period, a plurality of polled data periods, and a contention period;

means for, during the beaconing period, the master transmitting a beacon and each of the plurality of Slaves listening for the beacon;

means for, during the broadcast data period, the master broadcasting data and each of the plurality of Slaves listening for the broadcast data;

means for, during each polled data period, the master polling an assigned Slave and the assigned Slave transmitting data to the master if it has data to send;

means for, during the contention period, a new Slave, if present, transmitting to the master;

means for, during the plurality of polled data periods, non-assigned Slaves optionally powering down their transmitters and receivers; and

means for, during the contention period, the plurality of Slaves optionally powering down their transmitters and receivers.